

**WHAT IS CLAIMED:**

1. A rear-tine roto-tiller, comprising:
  - (a) a chassis having a forward end, and a rearward end;
  - (b) at least one pair of ground-engaging wheels supporting the chassis, the wheels  
5 rotating about a first axis;
  - (c) a plurality of tines disposed on the chassis at the rearward end for working soil, the tines having a leading edge and a trailing edge and being mounted for rotation about a tine shaft substantially parallel to the first axis, wherein the leading edge penetrates the soil before the trailing edge;
  - 10 (d) the direction of rotation of the tines being changeable between forward and reverse rotation; and
  - (e) wherein the tine shaft is rotatable in a substantially horizontal plane about a substantially vertical axis to change the direction of rotation of the tines.
2. The roto-tiller of claim 1, further comprising an engine for driving the wheels and the  
15 tines, the engine being mounted on the chassis at the forward end and the engine having a substantially vertically disposed drive shaft.
3. The roto-tiller of claim 1, wherein the leading edge is concave and the trailing edge is convex.
4. The roto-tiller of claim 1, further comprising a repositionable soil penetration limiter.
- 20 5. The roto-tiller of claim 5, wherein the soil penetration limiter is movable between a first position between the wheels and the tines and a second position rearward of the tines.

6. A rear-tine roto-tiller, comprising:
- (a) a chassis having a forward end and a rearward end;
  - (b) a set of rotating tines rotatably mounted at the rearward end;
  - (c) a set of ground-engaging wheels between the forward end and the tines; and
  - (d) a tine transmission mounted at the rearward end and having a substantially horizontal shaft holding the tines;
  - (e) wherein the tine transmission is rotatable about a substantially vertical axis between a first position in which the tines rotate in the same direction as the wheels and a second position in which the tines rotate in a direction opposite the direction of rotation of the wheels.
7. The roto-tiller of claim 6, further comprising an engine for driving the wheels and the tines, the engine being mounted on the chassis at the forward end and the engine having a substantially vertically disposed drive shaft.
8. The roto-tiller of claim 6, further comprising a repositionable soil penetration limiter.
9. The roto-tiller of claim 8, wherein the soil penetration limiter is movable between a first position between the wheels and the tines and a second position rearward of the tines.

10. A rear-tine roto-tiller, comprising:
- (a) a chassis having a forward end and a rearward end;
  - (b) a set of rotating tines rotatably mounted at the rearward end;
  - (c) a set of ground-engaging wheels between the forward end and the tines; and
  - 5 (d) an engine for driving the wheels and the tines, the engine being mounted on the chassis at the forward end and the engine having a substantially vertically disposed drive shaft.
11. The roto-tiller of claim 10, further comprising:
- 10 (a) a tine transmission mounted at the rearward end and having a substantially horizontal shaft holding the tines; and
  - (b) wherein the tine transmission is rotatable about a substantially vertical axis between a first position in which the tines rotate in the same direction as the wheels and a second position in which the tines rotate in a direction opposite the direction of rotation of the wheels.
- 15 12. The roto-tiller of claim 10, further comprising a water ballast tank forward of the engine.
13. The roto-tiller of claim 11, further comprising a wheel transmission driving the wheels and a wheel transmission belt frictionally engaging the drive shaft and the wheel transmission.
- 20 14. The roto-tiller of claim 13, further comprising a reversing belt frictionally engaging the drive shaft and an adjuster for alternately engaging one of the wheel transmission belt and reversing belt with the wheel transmission and drive shaft for forward and reverse motion respectively.
- 25 15. The roto-tiller of claim 13, further comprising a tine transmission belt frictionally engaging the wheel transmission and the tine transmission and an adjuster for disengaging the tine transmission belt from the tine transmission.